Portland Harbor Source Control Recontamination Evaluation Strategy

In keeping with the 2005 EPA & DEQ *JSCS*, 2005 EPA *Contaminated Sediment Remediation Guidance for Hazardous Waste Sites*, and 2002 EPA *OSWER Directive 9285.6-08 Principles for Managing Contaminated Sediment Risks at Hazardous Waste Sites (specifically w/PCBs)*, DEQ & EPA conferred on December 14, 2011, March 16, 2012, and October 29, 2012 to discuss an aligned strategy for Recontamination Evaluation in Portland Harbor. In support of the points of agreement listed below, an outline of strategy details follows and a timeline of elements anticipated has been developed.

POINTS OF AGREEMENT:

1. It is desirable to have a consistent approach (EPA lead or DEQ lead) for directing/conducting Recontamination Evaluations (REs) in Portland Harbor (PH).
2. There are both qualitative and quantitative elements in an RE. Most lines of evidence currently available are qualitative.
3. The PH-wide RE will initially be a "screening level" RE, provided by Summer 2013 by DEQ to EPA, before EPA's Proposed Plan (anticipated Fall 2013). Discussion of individual site-level REs completed by that time will be included. The screening level RE will be largely qualitative.
4. The robustness of the PH-wide RE can be enhanced over time with more quantitative information and details from the Remedial Design phase of EAs and the overall PH remedies.
5. EPA has contracted CDM to develop a standardized site level framework for recontamination evaluation for use at sites with varying project scope. DEQ and EPA input is being integrated.
6. For optimal coordination and to meet the aims of recontamination evaluation in available guidance, EPA will take the lead through EA processes in requesting data of specified quantity and quality to meet the needs of recontamination evaluation as appropriate at each site. Data collection during remedial investigation will be directed to provide baseline information for future interpretation of monitoring data. EA post-ROD Consent Decrees will include site-specific data and analysis needs in the detailed scope of work.

OBJECTIVES

1. The aim of conducting Recontamination Evaluation (RE) in Portland Harbor is to ensure that the river, and particularly river sediment, will not be recontaminated following implementation of the in-water sediment action remedies.

    a. An RE uses lines of evidence and specific tools to estimate the potential for recontamination from uplands (stormwater, groundwater, and erodible banks) and in-water (upstream total load (both bed & suspended loads), remedial dredging). While the stormwater pathway is most common, analysis of additional pathways will be warranted at some locations and should be integrated for a comprehensive RE.
        I. At specific sites
        II. In regional areas (AOPCs/SMAs, Outfalls (specific or grouped), restoration sites).
        III. On a harbor-wide basis.

    b. A site-specific loading analysis/RE is another line of evidence in confirming source control in the context of the JSCS iterative approach (see *JSCS* pg D-15 and DEQ *Guidance for Evaluating the Stormwater Pathway at Upland Sites* pg 13). Responsible parties should not expect that source control decisions can be made based on an RE.

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c. REs should be designed such that they can be revisited to confirm the predictions, verify effectiveness of upland SCMs implemented, and identify new threats. More robust information and approaches may be needed, as opposed to limited grab sampling and simplified models.

d. Additional monitoring/data collection of sediment, water & biota will be necessary to confirm predictions.

2. DEQ and EPA will each lead REs under different circumstances, using the jointly developed consistent approach. For coordination purposes, Rich Muza is EPA lead and Alex Liverman is DEQ lead.

3. In alignment with the JSCS, EPA Contaminated Sediment Remediation Guidance (2005), and EPA OSWER Directive 9285.6-08, a "lines of evidence" approach will be utilized for REs, based on both qualitative and quantitative data and analysis.

4. Clear ties between loading analyses/REs to risk-based values should be demonstrated for decision-making purposes. Development of appropriate tests may be needed to confirm predictions or trigger corrective actions to avoid recontamination (on site, regional area, and harbor-wide scales).

CONSIDERATIONS

A. <u>Format, process, integration into EPA CERCLA process</u> - EPA's Guidance (2005) indicates that the RE should be complete prior to implementation of in-water sediment actions.

DEQ is preparing a "Milestone-like Source Control Summary Report" that includes the "screening level" RE, to be submitted to EPA Summer 2013.

1) The screening level RE will include:

i. Demonstration of upland source control effectiveness. (pending final Risk Assessment(s) & water & sediment levels set in ROD)
   a) Areas under SCE/SCD – SW, GW, Banks…
      I. List SCDs that will stand ("SCMs documented and evaluated to prevent recontamination" – JSCS)*
      II. List SCDs that may need re-evaluation – additional data for RE/LA
   b) Regions for further RE/LA (confirmed through overlay w/ EPA risk analyses)
      I. Areas of on-going discharge (unable to control) w/ plan for RE
      II. By RPs per SCD re-evaluations
      III. By EPA/DEQ/City in areas of special concern or gaps
   c) Programs (DEQ, City, ODOT)
      I. NPDES discharge monitoring (esp. PH 1200Z) as effectiveness tool – PH 1200Z annual trends?
      II. Typical curves update
      III. DEQ 319, SRF, TMDL, 401 dredging, toxics reduction strategy (WQ, AQ, LQ)

IV. City OFs – CSO diversions, Industrial permitting, SW Manual & programs…
V. ODOT BMPs & maintenance
VI. MS-4 Permits – City of Portland, Port of Portland, Multnomah County (Broadway bridge)

d) Individual sites data & any loading analyses
I. Individual site data comparisons (per SCDs and on-going 1200Z monitoring)
II. REs done to date (voluntarily or otherwise)

e) Upstream info
I. Downtown Reach study/data
II. Other CU sites info (e.g., Zidell, Ross Island)
III. NPDES discharge data (upstream and tribs sources)
IV. Other WQ, AQ & LQ programs work

ii. An adaptive management strategy.

a) On-going monitoring data (through PH 1200Z permits, remedy evaluation & maintenance, etc.) to trigger re-evaluation or corrective action.

b) Identify areas of uncertainty, unique hydraulics, representative SMAs, etc. to focus on.

c) Should be integrated into EPA's monitoring of remedies required per EPA 2005 Guidance.

I. MNR – sediment accumulation rates, contaminant degradation rates/products, transport, contaminant levels (sediment, water, tissue), biotic recovery
II. Caps – construction specs met, bathymetry (thickness & stability over time), core chemistry (confirm isolation/no breakthrough), biological, cap surface recontamination
III. Dredging – residuals (sediment, benthics, bioaccumulatives, tissues), recontamination of sediment or biota.

2) Screening level RE elements will be addressed in EPA's Proposed Plan.

i. If significant recontamination potential is found at a site, esp. where total control is not attainable, EPA led SCMs may be needed as part of the response action.

ii. If sediment actions will result in significant benefits to human health or the environment, sediment actions should go forward despite on-going source risks.

3) DEQ and EPA will coordinate to refine the RE and add robustness by applying more quantitative information.

i. Detail developed through the Remedial Design phase of site EAs and the PH remedies.

ii. Partnering with the City on monitoring for industrial permit discharges, evaluation of MS-4 discharges, and OF/SMA/site specific loading analyses/modeling.

B. When does DEQ or EPA take the lead or partner on REs?

1) DEQ Lead Situations

i. At some Medium priority pathway(s) upland sites – determination if source control is necessary

ii. Evaluation of proposed upland site specific source control design and effectiveness confirmation – if there is uncertainty as to anticipated effectiveness of the proposed measure or design

2) EPA Lead Situations

i. Early action sites – EPA has required the implementing party to conduct a RE of upland and to some extent in-water sources.

ii. RD/RA – Evaluation of upland and in-water sources.

a) Riverbank component (conducted by the AOPC/SMA performing parties with EPA as the lead)

b) In-water remedy selection, esp. dredging components

iii. On-going effectiveness monitoring & additional sampling and analysis to verify recontamination evaluation predictions.

C. When models are the primary RE analytical tools, it is essential to carefully evaluate assumptions and consider uncertainty and limitations.

1) DEQ compared text and modeling submitted for preliminary loading analyses/REs at 7 sites in or near Portland Harbor and developed an outline of issues for consideration around conservative assumptions, input parameter variations and ranges, site specific considerations and sensitivity analysis.

2) CDM is developing a framework, with EPA & DEQ input on practical applications for RE that will be useful as a guide for responsible party consultants to undertake appropriate REs and for regulators to critically evaluate their RE process and results.